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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/036,395	01/07/2002	Thomas Clark	0030-0005	3633

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EXAMINER	
LEUNG, CHRISTINA Y	
ART UNIT	PAPER NUMBER
2633	

DATE MAILED: 12/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/036,395	CLARK ET AL.	
	Examiner	Art Unit	
	Christina Y. Leung	2633	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 January 2002*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-30* is/are rejected.

7)☒ Claim(s) *25* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *07 January 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *2-19-02*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claim 25 is objected to because of the following informalities:

Claim 25 recites "An system" (sic) in line 1 of the claim. Examiner respectfully suggests that Applicants amend this phrase to "A system" for grammatical reasons.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-29 are rejected under 35 U.S.C. 102(b) as being anticipated by Khaleghi et al. (US 6,040,933 A).

Regarding claim 1, Khaleghi et al. disclose a method of pre-emphasizing an optical system launch power profile (Figure 1), comprising:

measuring a signal-to-noise ratio (SNR) (column 7, lines 65-67; column 8, lines 1-10); and

pre-emphasizing the launch power profile based on a function of the measured SNR (through a feedback signal 72; column 8, lines 18-23).

Further regarding claim 1, Khaleghi also disclose performing the step of measuring a signal-to-noise ratio over m spans of an n span optical system, wherein m<n (i.e., not only at the

receiving demultiplexer) since they specifically disclose that the method may be used to equalize two or more channels at any location in the transmission path (column 5, lines 44-67).

Regarding claim 2, Khaleghi et al. disclose that each span of the n spans comprises a link and at least one repeater (Figure 1 shows several such spans, each including a repeater/amplifier 38).

Regarding claim 3, the function (i.e., the optical power adjustment disclosed by Khaleghi et al.) comprises an inverse of the SNR (column 5, lines 23-34).

Regarding claim 4, Khaleghi et al. disclose that the SNR comprises a SNR profile (Khaleghi et al. disclose measuring SNR values corresponding to each channel, creating a profile; column 8, lines 7-10).

Regarding claim 5, Khaleghi et al. disclose optimizing the pre-emphasis of the launch power profile such that a profile of the SNR comprises a substantially constant value (column 4, lines 25-30; column 8, lines 23-30).

Regarding claim 6, Khaleghi et al. disclose selectively repeating the launch power profile pre-emphasis to optimize the measured SNR (column 8, lines 23-30).

Regarding claim 7, Khaleghi et al. disclose a system for pre-emphasizing an optical system launch power profile (Figure 1), comprising:

means (network monitor 18) for measuring a signal-to-noise ratio (SNR) over m spans of an n span optical system, wherein $m<n$ (column 7, lines 65-67; column 8, lines 1-10); and

means for pre-emphasizing the launch power profile based on a function of the measured SNR (Khaleghi et al. disclose feedback signal 72 and transmitters 20 with adjustable power; column 8, lines 18-23).

Again, Khaleghi disclose that network monitor 18 may be used to measure a signal-to-noise ratio over m spans of an n span optical system, wherein m<n (i.e., not only at the receiving demultiplexer) since they specifically disclose that the system may be used to equalize two or more channels at any location in the transmission path (column 5, lines 44-67).

Regarding claim 8, Khaleghi et al. disclose a method of transmitting signals in an optical system comprising a set of spans (Figure 1), the method comprising:

transmitting optical signals according to a first launch power profile (using transmitters 20);

determining power-related parameters over a subset of the set of spans (using network monitor 18; column 5, lines 44-67; column 7, lines 65-67; column 8, lines 1-10); and

transmitting optical signals according to a second launch power profile based on the determined power-related parameters (using transmitters 20 that have been power-adjusted by feedback signal 72; column 8, lines 18-23).

Regarding claim 9, Khaleghi et al. disclose that the power-related parameters comprise a signal-to-noise power ratio profile (column 8, lines 7-10).

Regarding claim 10, Khaleghi et al. disclose comparing the power-related parameters to a set of desired parameters (column 4, lines 25-30; column 8, lines 14-18).

Regarding claim 11, Khaleghi et al. disclose adjusting the second launch power profile until the determined power-related parameters substantially equal the set of desired parameters (column 8, lines 23-30)

Regarding claim 12, Khaleghi et al. disclose that the set of desired parameters comprises a signal-to-noise ratio (SNR) profile (column 8, lines 7-10).

Regarding claim 13, Khaleghi et al. disclose that the SNR profile comprises a substantially constant SNR value (column 4, lines 25-30; column 8, lines 23-30).

Regarding claim 14, Khaleghi et al. disclose an optical transmission system (Figure 1), comprising:

a set of spans (transmission path 16), wherein each span of the set of spans comprises a link and at least one repeater (amplifiers 38);

an optical transmitter (transmitter terminal 12, comprising transmitters 20) configured to transmit optical signals over the set of spans according to a first launch power profile; and

a monitor unit (network monitor 18) configured to determine power-related parameters over a subset of the set of spans (column 5, lines 44-67; column 7, lines 65-67; column 8, lines 1-10), the optical transmitter further configured to transmit optical signals according to a second launch power profile based on the determined power-related parameters (after the transmitters are power-adjusted by feedback signal 72; column 8, lines 18-23).

Regarding claim 15, Khaleghi et al. disclose that the power-related parameters comprise a signal-to-noise power ratio profile (column 8, lines 7-10).

Regarding claim 16, Khaleghi et al. disclose that the system is further configured to compare the power-related parameters to a set of desired parameters (column 4, lines 25-30; column 8, lines 14-18).

Regarding claim 17, Khaleghi et al. discloses that the system is further configured to adjust the second launch power profile until the determined power-related parameters substantially equal the set of desired parameters (column 8, lines 23-30).

Regarding claim 18, Khaleghi et al. disclose that the set of desired parameters comprises a signal-to-noise ratio (SNR) profile (column 8, lines 7-10).

Regarding claim 19, Khaleghi et al. disclose that the SNR profile comprises a substantially constant SNR value (column 4, lines 25-30; column 8, lines 23-30).

Regarding claim 20, Khaleghi et al. disclose a method of optimizing optical system signal-to-noise ratio (SNR) (Figure 1), comprising:

measuring SNR over m spans of a n span optical system, wherein m<n (using network monitor 18; column 5, lines 44-67; column 7, lines 65-67; column 8, lines 1-10); and

adjusting a system launch power profile to optimize the SNR measured over the m spans (by using feedback signal 72 to adjust the transmitters 20; column 8, lines 18-23).

Regarding claim 21, Khaleghi et al. disclose that each span of the n spans comprises a link and at least one repeater (i.e., at least one amplifier 38).

Regarding claim 22, Khaleghi et al. disclose that the SNR comprises a SNR profile (column 8, lines 7-10).

Regarding claim 23, Khaleghi et al. disclose adjusting the system launch power profile such that the SNR profile comprises a substantially constant value (column 4, lines 25-30; column 8, lines 23-30).

Regarding claim 24, Khaleghi et al. disclose selectively repeating the system launch power profile adjustment to optimize the measured SNR (column 8, lines 23-30).

Regarding claim 25, Khaleghi et al. disclose a system for optimizing optical system signal-to-noise ratio (SNR) (Figure 1), comprising:

a monitoring unit (network monitor 18) configured to measure SNR over m spans of an n span optical system, wherein m<n (column 5, lines 44-67; column 7, lines 65-67; column 8, lines 1-10); and

an optical transmitter (transmitting terminal 12 comprising transmitters 20) configured to adjust a system launch power profile to optimize the SNR measured over the m spans (column 8, lines 18-23).

Regarding claim 26, Khaleghi et al. disclose that each span of the n spans comprises a link and at least one repeater (i.e., at least one amplifier 38).

Regarding claim 27, Khaleghi et al. disclose the SNR comprises a SNR profile.

Regarding claim 28, Khaleghi et al. disclose adjusting the system launch power profile such that the SNR profile comprises a substantially constant value.

Regarding claim 29, Khaleghi et al. disclose repeating the system launch power profile adjustment to optimize the measured SNR.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Khaleghi et al. Regarding claim 30, Khaleghi et al. disclose a method as discussed above with regard to claims 1 and 3, and further disclose that the inverse of the SNR is normalized based on a reference channel (column 5, lines 28-43). They do not specifically disclose that this reference may

necessarily be the channel having a lowest SNR performance, but they do suggest that it may be selected from any of the channels (column 8, lines 14-18). It would have been obvious to a person of ordinary skill in the art to use the channel with the lowest SNR as the reference channel in the method disclosed by Khaleghi et al. as an engineering design choice of a reference channel. The claimed differences exist not as a result of an attempt by Applicants to solve an unknown problem but merely amount to the selection of expedients known as design choices to one of ordinary skill in the art. Applicants acknowledge in their specification on page 11 that calculations other than one based on the lowest SNR channel may be used.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christina Y. Leung whose telephone number is 571-272-3023. The examiner can normally be reached on Monday to Friday, 6:30 to 3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on 571-272-3022. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571-272-2600.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Christina Y Leung
Christina Y Leung
Patent Examiner
Art Unit 2633